

10. Place all clamps as nearly as possible opposite some bearing point of the work, to avoid springing.
11. Core out all unnecessary metal, making the tools as light as possible, consistent with rigidity and stiffness.
12. Round all corners.
13. Provide handles wherever these will make the handling of the jig more convenient.
14. Provide feet, preferably four, opposite all surfaces containing guide bushings in drilling and boring jigs.
15. Place all bushings inside of the geometrical figure formed by connecting the points of location of the feet.
16. Provide abundant clearance, particularly for rough castings.
17. Make, if possible, all locating points visible to the operator when placing the work in position.
18. Provide holes or escapes for the chips.
19. Provide clamping lugs, located so as to prevent springing of the fixture, on all tools which must be held to the table of the machine' while in use, and tongues for the slots in the tables in all milling and planing fixtures.
20. Before using in the shop, for commercial purposes, test all jigs as soon as made.

Types of Jigs. — The two principal classes of jigs are drill jigs and boring jigs. Fixtures may be grouped as milling, planing, and splining fixtures, although there are a number of special fixtures which could not be classified under any special head.

Drill jigs are intended exclusively for drilling, reaming, tapping, and facing. Whenever these four operations are required on a piece of work, it is, as a rule, possible to provide the necessary arrangements for performing all these operations in one and the same jig. Sometimes separate jigs are made for each one of these operations, but it is doubtless more convenient and cheaper to have one jig do for all, as the design of the jig will not be much more complicated. Although it may be possible to make a distinction between a number of different types of drill jigs, it is almost

impossible to define and to get proper